Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A method for providing a β_2-adrenergic receptor (β_2AR) to airway epithelial cells, airway smooth muscle cells or a combination thereof, of a human subject comprising:

(a) administering via airway treatment to at least one cell type selected from the group consisting of airway epithelial cells, airway smooth muscle cells and a combination thereof of a human subject, a first composition comprising a vector comprising a DNA sequence encoding a β_2AR operably linked to a promoter that is functional in at least one of said cells of said subject, under conditions whereby the DNA sequence encoding said β_2AR is expressed in at least one of said cells.

2. (Original) The method of claim 1, wherein said DNA sequence encodes a β_2AR that is modified as compared to the native β_2AR.

3. (Currently Amended) The method of ~~claims~~ claim 1, wherein said promoter is an inducible promoter, and said method further comprises:

(b) administering via airway treatment a second composition comprising a hormone or pharmacological agent that induces said promoter to express said β_2AR in at least one of said cells.

4. (Currently Amended) The method of ~~claims~~ claim 1, wherein said method further comprises:

(b) administering via airway treatment a second composition comprising at least one β_2-adrenergic agonist to said cells of said subject.

5. (Previously Presented) The method of claim 4, wherein said promoter is an inducible promoter, said method further comprises:

(c) administering via airway treatment a third composition comprising a hormone or pharmacological agent that induces said promoter to express said β_2AR in at least one of said cells.

6. (Canceled)

7. (Canceled)

8. (Previously Presented) A method of treating a human subject having airway disease comprising:

(a) administering via airway treatment to at least one cell type selected from the group consisting of airway epithelial cells, airway smooth muscle cells and a combination thereof, a first composition comprising a vector comprising a DNA sequence encoding a β_2AR operably linked to a promoter that is functional in at least one of said cells of said subject, under conditions whereby the DNA sequence encoding said β_2AR is expressed in at least one of said cells; and

(b) administering via airway treatment a second composition comprising at least one β_2-adrenergic agonist into said cells of said subject.

9. (Previously Presented) The method of claim 8 wherein said cell is an airway epithelial cell.

10. (Previously Presented) The method of claim 8, wherein said vector is a viral vector or a non-viral vector.

11. (Original) The method of claim 10, wherein said viral vector is selected from the group consisting of an adeno-associated vector (AAV), an adenovirus vector and a retrovirus vector.

12. (Original) The method of claim 10, wherein said non-viral vector is a liposome.

13. (Currently Amended) The method of claim 10, wherein said promoter is ~~selected from the group consisting of~~ a viral vector promoter ~~and a mammalian~~ or an epithelial cell specific promoter.

14. (Canceled)

15. (Original) The method of claim 13, wherein said viral vector promoter is a cytomegalovirus (CMV) promoter or an adeno-associated vector (AAV) promoter.

16. (Original) The method of claim 15, wherein said vector is an AAV vector and said promoter is a CMV promoter.

17. (Original) The method of claim 13, wherein said promoter is an inducible promoter.

18. (Previously Presented) The method of claim 17, wherein said method further comprises:

(c) administering via airway treatment a composition comprising a hormone or pharmacological agent that induces said promoter to express said β_2AR in at least one of said cells.

19. (Original) The method of claim 1, wherein said vector further comprises at least one enhancer element or regulatory element.

20. (Currently Amended) The method of ~~claims~~ claim 1, wherein said first composition further comprises a pharmaceutically acceptable carrier for aerosol delivery.

21. (Original) The method of claim 4, wherein said second composition is administered sequentially after the administration of said first composition.

22. (Original) The method of claim 8, wherein said second composition is administered sequentially after the administration of said first composition.

23. (Original) The method of claim 3, wherein said first and second compositions further comprise a pharmaceutically acceptable carrier for aerosol delivery.

24. (Original) The method of claim 4, wherein said first and second compositions further comprise a pharmaceutically acceptable carrier for aerosol delivery.

25. (Original) The method of claim 5, wherein said first, said second and said third compositions further comprise a pharmaceutically acceptable carrier for aerosol delivery.

26. (Original) The method of claim 8, wherein said first and second compositions further comprise a pharmaceutically acceptable carrier for aerosol delivery.

27. (Original) The method of claim 8, wherein said DNA sequence encodes a β_2AR that is modified as compared to the native β_2AR.

28. (Original) The method of claim 2, wherein said modified β2AR possesses at least one property selected from the group consisting of increased responsiveness to β_2AR agonists, increased affinity to β_2-adrenergic agonists, and capability to increase the potency of β_2AR agonists to stimulate downstream signal transduction pathways, as compared to the native β_2AR.

29. (Original) The method of claim 28, wherein said modified β_2AR is modified from the native β_2AR by the deletion of amino acids, substitution of amino acids, replacement of amino acids or a combination thereof.

30. (Previously Presented) A pharmaceutical composition comprising a vector comprising a DNA sequence encoding a β_2AR operably linked to a promoter that is functional in at least one cell of the airways of a human subject, wherein said cell is selected from the group consisting of an airway epithelial cells, airway smooth muscle cells and a combination thereof; and a pharmaceutically acceptable carrier, wherein said pharmaceutical composition is an aerosol which is suitable for airway delivery to said subject.

31. (Original) The pharmaceutical composition of claim 30, wherein said DNA sequence encodes a β_2AR that is modified as compared to the native β_2AR.

32. Canceled

33. (Previously Presented) A kit for the treatment of a human subject having airway disease comprising:

(a) a first pharmaceutical composition comprising a vector comprising a DNA sequence encoding a β_2AR operably linked to a promoter that is functional in at least one cell of the airways of a human subject, wherein said cell is selected from the group consisting of an airway epithelial cells, airway smooth muscle cells and a combination thereof; and a pharmaceutically acceptable carrier, wherein said first pharmaceutical composition is an aerosol which is suitable for airway delivery to said subject; and

(b) a second pharmaceutical composition comprising at least one β_2-adrenergic agonist and a pharmaceutically acceptable carrier, wherein said second pharmaceutical composition is an aerosol which is suitable for airway delivery to said subject.

34. (Original) The kit of claim 33, wherein said β_2AR is modified as compared to the native β_2AR.

35. (Previously Presented) The kit of claim 33, , wherein said promoter is an inducible promoter, said kit further comprises:

(c) a third pharmaceutical composition comprising a hormone or pharmacological agent that induces said promoter to express said β_2AR in at least one of said cells, wherein said third pharmaceutical composition is an aerosol which is suitable for airway delivery to said subject.

36. (Canceled)

37. (Canceled)

38. (Previously Presented) A kit for the treatment of a human subject having airway disease comprising:

(a) a first pharmaceutical composition comprising a vector comprising a DNA sequence encoding a β_2AR operably linked to a promoter that is functional in at least one cell of the airways of a human subject, wherein said cell is selected from the group consisting of an airway epithelial cells, airway smooth muscle cells and a combination thereof; and a pharmaceutically acceptable carrier; and

(b) a second pharmaceutical composition comprising a hormone or pharmacological agent that induces said promoter to express said β_2AR in at least one of said cells, wherein said first and second pharmaceutical compositions are aerosols which are suitable for airway delivery to said subject.

39 -- 43 (Canceled)

44. (Currently Amended) The method of claim 3, wherein said promoter is an epithelial cell specific promoter or a ~~smooth muscle cell specific~~ viral vector promoter.

45. (Currently Amended) The method of claim 5, wherein said promoter is an epithelial cell specific promoter or a ~~smooth muscle cell specific~~ viral vector promoter.

46 (Currently Amended) The pharmaceutical composition of claim 30, wherein said promoter is an endothelial cell specific promoter or a ~~smooth muscle cell specific~~ viral vector promoter.

47. (Currently Amended) The kit of claim 35, wherein said promoter is an epithelial cell specific promoter or a ~~smooth muscle cell specific~~ viral vector promoter.

48. (Currently Amended) The kit of claim 38, wherein said promoter is an epithelial cell specific promoter or a ~~smooth muscle cell specific~~ viral vector promoter.

49. (Previously Presented) A kit for the treatment of a human subject having airway disease comprising:

a first pharmaceutical composition comprising a vector comprising a DNA sequence encoding a β_2AR operably linked to a promoter that is functional in at least one cell of the airways of a human subject, wherein said cell is selected from the group consisting of an airway epithelial cells, airway smooth muscle cells and a combination thereof; and a pharmaceutically acceptable carrier;

a second pharmaceutical composition comprising at least one β_2-adrenergic agonist and a pharmaceutically acceptable carrier; and

a third pharmaceutical composition comprising a hormone or pharmacological agent that induces said promoter to express said β_2AR in at least one of said cells, wherein said

first, second and third pharmaceutical compositions are aerosols which are suitable for airway delivery to said subject.

50. (Currently Amended) The kit of claim 49, wherein said promoter is an epithelial cell specific promoter or a ~~smooth muscle cell specific~~ viral vector promoter.

51. (Previously Presented) The method of claim 27, wherein said modified β_2AR possesses at least one property selected from the group consisting of increased responsiveness to β_2AR agonists, increased affinity to β_2-adrenergic agonists, and capability to increase the potency of β_2AR agonists to stimulate downstream signal transduction pathways, as compared to the native β_2AR.

52. (Previously Presented) The method of claim 51, wherein said modified β_2AR is modified from the native β_2AR by the deletion of amino acids, substitution of amino acids, replacement of amino acids or a combination thereof.

53. (Previously Presented) The pharmaceutical composition of claim 31, wherein said modified β_2AR possesses at least one property selected from the group consisting of increased responsiveness to β_2AR agonists, increased affinity to β_2-adrenergic agonists, and capability to increase the potency of β_2AR agonists to stimulate downstream signal transduction pathways, as compared to the native β_2AR.

54. (Previously Presented) The pharmaceutical composition of claim 53, wherein said modified β_2AR is modified from the native β_2AR by the deletion of amino acids, substitution of amino acids, replacement of amino acids or a combination thereof.

55. (Previously Presented) The method of claim 1, wherein said subject is afflicted with asthma.

56. (Previously Presented) The method of claim 8, wherein said airway disease is asthma.

57. (Previously Presented) The method of claim 18, wherein said airway disease is asthma.